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CODIB-D-82/7
11 July 1961

UNITED STATES INTELLIGENCE BOARD
COMMITTEE ON DOCUMENTATION

Ideas on Processing Information

1. In CODIB-D-82/2 (Limited Distribution), I invited contributions to CODIB's food for thought department.
2. Attached for information is such a contribution, a paper prepared by Mr. Joseph Becker, Chief, CIA Automatic Data Processing Staff.

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Chairman

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29 June 1961

TO : [REDACTED]
FROM :

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SUBJECT: Processing of Printed Intelligence Information

BACKGROUND

This paper is written in response to your desire to obtain some informal views of whether we are going in the intelligence information processing field.

The characteristics of intelligence information processing are, except for security restrictions, little different from those confronting the normal world of information and publication. Dipping back into an article written by one of the predecessor Chiefs of ODDR&E we find that he had this to say about the information situation in the scientific community:

"There is a growing mountain of research. But there is increased evidence today that we are being bogged down as specialization extends . . . The investigator is staggered by the findings and conclusions of thousands of other workers . . . conclusions which he cannot find time to grasp, much less to remember as they appear . . . The difficulty seems to be not so much that we publish unduly in view of the extent and variety of present-day interests, but rather that publication has been extended far beyond our present ability to make real use of the record. The summation of human experience is being expanded at a prodigious rate and the means we use for threading through the consequent maze to the momentarily important item is the same as we used in the days of square rigged ships."*

Were Dr. Bush writing about the status of publishing in the intelligence community today he might have drafted an analogous paragraph as follows:

*Vannevar Bush, Atlantic Monthly, July 1945

"There is a growing mountain of information being generated by our vast USIB collection resources abroad. But there is increased evidence that we are being bogged down by the multiplicity of separately directed processing efforts . . . printed data is piling up faster than we are able to make use of it . . . The intelligence research analyst is staggered by the volume of facts and findings reported to him in print . . . facts which he cannot find time to grasp, much less remember as they appear, nor from which he can deduce meaningful patterns for evaluation. The difficulty seems to be not so much that we publish unduly in view of our world-wide intelligence commitments and variety of community specializations, but rather that our rate of collection far outstrips our present ability to process and analyze. Thus, no means exist for continually honing requirements in a way that will ensure more precise field collection. The summation of human experience in intelligence is being expended at a prodigious rate and the means we use for threading through the collected maze of recorded information to find intelligence is the same as we used in the days of Mata Hari."

PROBLEM

The problem in the intelligence community is that the size, cost, and complexity of inter-agency information processing relationships are growing, not at a constant rate, but at an ever increasing rate. Other influences, such as the introduction of costly data processing equipment, serve to dramatize the fact that there is no slackening of this trend. From purely an economic viewpoint, let alone others, it is imperative that the intelligence community devise some mechanism for optimizing its programs in the area of information processing.

The CODIB group, and its predecessor organization, AHIP, have vainly sought solutions to the problem of interagency "compatibility" for the handling and processing of printed information collected by intelligence in the field. While we have achieved some measure of success through the introduction of minor modifications to existing systems, no major blueprint or plan for total system integration has been forthcoming. The reasons why this has not been possible thus far are several:

- a. Missions and interests of each member of the intelligence community differ;
- b. Command lines responsible for information processing activities are independent and not always subordinate to intelligence control;

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- c. The local or "in house" needs of any one agency usually have priority over the needs of the other agencies;
- d. A communal approach to the major problems of intelligence documentation cannot be followed up with executive leadership for action;
- e. The value and benefits to be derived through interagency compatibility remain unclear because the notion of compatibility means different things to different people.

DISCUSSION

As you requested, I spent some time with the various DOD service activities concerned with information processing of printed data - Army, (John Kullgren), Navy, (Capt. Higgins and Dr. Yovits), as well as Air Force, (John Toler).

While the 3 services have identical objectives they are proceeding down divergent data processing paths. Each has taken a different approach to the problem and each employs different contractual assistance. Army's approach has been to strengthen the intelligence analyst's ability to collate printed data and Army is using the Order of Battle function as a model; Air Force has emphasized document retrieval through MINICARD and is seeking to provide the intelligence analyst with new forms of data manipulation by computer; Navy has recently entered the field by trying a small experimental effort. Army employs RCA and uses a Sylvania computer; Air Force is associated with Eastman Kodak and uses IBM computer equipment; and, Navy is soon to decide on its own avenue of exploration.

Historically, the information processing programs of the services had their first beginnings in the "library" or "document file" activity. In post WWII days the volume of information collected abroad was comparatively small and the library was able to function effectively along traditional lines. However, the virtual explosion of collection media in the past decade has inundated the intelligence community with printed information it is incapable of processing. It is this pressure which has given rise to unconventional approaches and the expectation that automation may possibly offer a fruitful solution to the problem.

Even though the 3 service information processing programs are diverse, the people who run them are not unaware of the sameness of their objectives. They freely exchange information on each other's progress and share professional interest in each other's work. Given present organizational structure and mission assignment as a fact of life it is difficult to perceive how the 3 service programs could be made to mesh any further. While overlap does exist among the services it should not be construed negatively as an outright case of duplication of effort. In reality,

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each service is simply being responsive to the needs and commands of its own environment. Moreover, the entire field of information processing is so new and experimental that multiple research programs tend to mutually reinforce one another. Only through some reorganization, can we expect to see radical system improvement or program consolidation.

During the last decade we have witnessed the expenditure of large sums of money for R&D and for implementation of intelligence collection systems without a corresponding emphasis on the processing of end products realized. Inasmuch as printed information is the lifeblood of the national intelligence effort, we need to introduce some means whereby we ensure the optimum use of it. Without such change, the entire intelligence cycle is threatened with becoming unmanageable and self-defeating - and, therefore, wasteful and unresponsive to its full purpose and responsibility. The processing of printed information should be viewed as an independent program, deserving separate support in its own right, and placed on a par with other major activities such as electronics, air defense, weapons systems, etc.

I do not believe that a prolonged study of the current situation, by either in-house personnel or outside contractors, can add a new dimension to our understanding of the problem. CODIB discussions have succeeded in airing all aspects of the need, of the underlying philosophy of compatibility, and of the technical complexities that are involved. Listed below are some of the weaknesses recognized by CODIB as existing in the multi-agency approach to the processing of printed information:

- a. Uncontrolled growth of information requirements sent to the field;
- b. Subsequent wasteful use of collection resources;
- c. Multiplicity of report formats and absence of standardization of field preparation procedures for generating intelligence documents;
- d. Very slow transmittal of documentary information from field to headquarters;
- e. Time-consuming, laborious, many-step dissemination mechanisms;
- f. Duplication of headquarters analysis and indexing;
- g. Independent growth of systems of storage and retrieval for the same documentary material;

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- h. Poor interagency communication between similar repositories of information;
- i. Little or no user feedback;
- j. Scattered research and development efforts;
- k. Absence of rigorous statistical analysis of operations.

Everyone is therefore already alerted to the problem areas and, in general, agency representatives are personally disposed toward taking some form of united action. The difficulty has been in deciding just what action to take . . . not because the problem is vague and requires definition but because all recognize that centralized direction is well-nigh impossible under existing command structures. As long as the specialized interests of the individual agencies and services prevail, USIB members are to be expected to satisfy their primary internal responsibilities independently - and this is as it should be.

A logical alternative to present unilateral approaches would be the creation of a USIB Information Processing Center. This Center would be responsible for ensuring systematic preparation of printed information in the field, developing rapid methods of transmittal, and performing technical services such as reproduction, dissemination, microphotography, distribution, and machine language conversion. The individual services and other USIB members would continue to operate task-oriented EDP installations of their own to satisfy internal data manipulation requirements.

The Center would evolve its program along lines that would ensure the employment of the most advanced forms of communication and electronic data processing techniques. In essence, it would be responsible for doing the housekeeping data processing jobs required by all of the USIB agencies, and for providing each USIB member with input data in machine language as an end product. The recipients, in turn, would tailor their internal computer processing to satisfy user requirements in their own environment. The Center would also have authority to conduct research and engineering programs in support of its basic mission.

There is considerable precedent for establishing such a joint effort. ELINT, COMINT, and PI are prime examples of specialized information processing organizations layered between the collectors and the users to perform common support services. The proposed Center would be of the same type but its work orientation would be toward all forms of printed intelligence (PRINT) information.

The CODIB recommendation to USIB represents a vehicle that could be used to generate an NSCID for a National PRINT Center. Rather than studying the problem

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with 20 people during the next year, more progress would be made if CODIB drafted the NSCID and used the first allocation of USIB manpower to plan, organize, and implement the Center.

SUMMARY

The volume of printed information flowing in upon the Intelligence Community has vastly increased. The members of the Community are now unable to exploit fully these expanding quantities of materials. Yet, these very materials are the life-blood of the intelligence production effort.

USIB members are aware of the growing problem they face in the information processing field. . . and most have, individually, undertaken to develop computer-driven data processing capabilities in attempts to cope with the problem. Information concerning these systems under development is freely exchanged within the community, but the programs themselves are largely unrelated to one another. Given the present Community structure, this is entirely natural.

CODIB has recently proposed a community-wide survey of both the traditional problems of document and information control and the new problems and requirements emerging as a result of the growth in member agencies of these various computer-driven data processing systems. CODIB, however, and its predecessor organization, have already done much to illuminate the problems which plague all our houses.

It appears to me that for fruitful study a new dimension is needed . . . a new framework within which to study, plan, operate, and manage that vast portion of the data processing problem which is common to all USIB members. I do not feel the Community survey now under consideration by CODIB provides such a new dimension or framework. I believe a basic reorganization of our present structure and system for the processing of printed intelligence (PRINT) is a pre-requisite to any major improvement in the Community's over-all data processing effort.

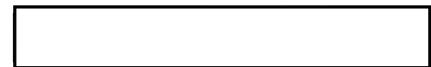
I suggest, therefore, the creation of an USIB information processing center . . . funded, managed, and staffed jointly by USIB members. This Center might be called The National PRINT Center. The Center would coordinate the collection and transmission of printed data from the field to assure technical suitability for subsequent processing. It would perform common "housekeeping" services at Headquarters for USIB members, such as storing, reproducing, indexing, disseminating, microfilming, and converting machine languages. The Center would supply machine language input to the various task-oriented EDP installations which

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USIB members would continue to operate to satisfy parochial data manipulation requirements. The Center would also conduct R&D programs appropriate to its mission.

CODIB is the logical body to initiate steps to generate an NSCID calling for the establishment of such a National PRINT Center.



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